

AMENDMENTS TO THE SPECIFICATION

Please insert at page 30, line 2 of the specification as filed, after the heading “Brief Description of the Drawings” and before the first paragraph in that section, the following new paragraph:

The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the Office upon request and payment of the necessary fee.

Please replace the first full paragraph on page 49 of the application as filed with the following, amended paragraph:

In an alternative embodiment, different PETs may be linked together in a single, longer immunogen for administration to an animal. The linker sequence can be flexible linkers such as GS, GSSSS (SEQ ID NO. 615) or repeats thereof (such as three-peats).

Please replace the Table titled “Commercial Anti-PET Antibodies” bridging pages 49-50 of the application as filed with the following, amended Table. Please note that only the SEQ ID NOs - have been added to this Table. The underlined portions of the sequences in this Table appear underlined in the application as filed.

Commercial Anti-PET Antibodies

Protein	PTP (Immunogen/PET underlined)	Nearest Neighbors
Anti-Cyclin F	TASPT <u>TSSVDGGL</u> GALP.K (SEQ ID NO. 616)	SASIDGGL (SEQ ID NO. 617); SSSSDGGL (SEQ ID NO. 618); TGSVDGGA (SEQ ID NO. 619); ESSSDGGL (SEQ ID NO. 620)
Anti-phospho SHC (Tyr239)	FAGMPITLTVST <u>TSSLNLMA</u> ADCK (SEQ ID NO. 621)	ISTASLNL (SEQ ID NO. 622); ISTSSLNV (SEQ ID NO. 623); VSLSSLNL (SEQ ID NO. 624); MDTSSLNL (SEQ ID NO. 625)
Anti-phospho- PP2A (Tyr307)	EEE <u>ADINQLTE</u> EFF.K (SEQ ID NO. 626)	ADLNQLTQ (SEQ ID NO. 627); RDINQLSE (SEQ ID NO. 628); ADFNQLAE (SEQ ID NO. 629); ADINMVTE (SEQ ID NO. 630)
Anti-Cdk8	ATS <u>QQPPQYSH</u> QTHR (SEQ ID NO. 631)	QEPPQYSH (SEQ ID NO. 632); QQQPQFSH (SEQ ID NO. 633); QQPPQHSK (SEQ ID NO. 634); QQPPQQQH (SEQ ID NO. 635);

Please replace the Table bridging pages 110-112 of the application as filed with the following, amended Table:

Protein Kinase	Recognition Motifs ^a	Phosphorylation Sites _b	Protein Substrate (reference)
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cAMP-dependent Protein Kinase (PKA, cAPK)	R-X-S/T ^c R-R/K-X-S/T	Y ₇ LRRASLAQLT (SEQ ID NO. 636) F ₁ RRLSIST (SEQ ID NO. 637) A ₂₉ GARRKASGPP (SEQ ID NO. 638)	pyruvate kinase (2) phosphorylase kinase, a chain (2) histone H1, bovine (2)
Casein Kinase I (CKI, CK-1)	S(P)-X-X-S/T	R ₄ TLS(P)VSSLPGL (SEQ ID NO. 639) D ₄₃ IGS(p)ES(p)TEDQ (SEQ ID NO. 640)	glycogen synthase, rabbit muscle (4) α _{s1} -casein (4)
Casein Kinase II (CKII, CK-2)	S/T-X-X-E	A ₇₂ DSESEDEED (SEQ ID NO. 641) L ₃₇ ESEEEGVPST (SEQ ID NO. 642) E ₂₆ DNSEDEISNL (SEQ ID NO. 643)	PKA regulatory subunit, R _{II} (2) p34 ^{cdc2} , human (5) acetyl-CoA carboxylase (2)
Glycogen Synthase Kinase 3 (GSK-3)	S-X-X-X-S(p)	S ₆₄₁ VPPSPSLS(p) (SEQ ID NO. 644) S ₆₄₁ VPPS(p)PSLS(p) (SEQ ID NO. 645)	glycogen synthase, human (site 3b) (6,2) glycogen synthase, human (site 3a) (6,2)
Cdc2 Protein Kinase	S/T-P-X-R/K ^c	P ₁₃ AKTPVK (SEQ ID NO. 646) H ₁₂₂ STPPKKKRK (SEQ ID NO. 647)	histone H1, calf thymus (2) large T antigen (2)
Calmodulin-dependent Protein Kinase II (CaMK II)	R-X-X-S/T R-X-X-S/T-V	N ₂ YLRRRLSDSN (SEQ ID NO. 648) K ₁₉₁ MARVFSVLR (SEQ ID NO. 649)	synapsin (site 1) (2) calcineurin (2)

Mitogen-activated Protein Kinase (Extracellular Signal-regulated Kinase) (MAPK, Erk)	P-X-S/T-P ^d X-X-S/T-P	P ₂₄₄ LSP (SEQ ID NO. 650) P ₉₂ SSP (SEQ ID NO. 651) V ₄₂₀ LSP (SEQ ID NO. 652)	c-Jun (7) cyclin B (7) Elk-1 (7)
cGMP-dependent Protein Kinase (cGPK)	R/K-X-S/T R/K- X -X-S/T	G ₂₆ KKRKRSRKES (SEQ ID NO. 653) F ₁ RRLSIST (SEQ ID NO. 654)	histone H2B (2) phosphorylase kinase (a chain) (2)
Phosphorylase Kinase (PhK)	K/R-X-X-S-V/I	D ₆ QEKRKQISVRG (SEQ ID NO. 655) P ₁ LSRTL SVSS (SEQ ID NO. 656)	phosphorylase (2) glycogen synthase (site 2) (2)
Protein Kinase C (PKC)	S/T-X-K/R K/R- X -X-S/T K/R-X-S/T	H ₅₉₄ EGTHSTKR (SEQ ID NO. 657) P ₁ LSRTL SVSS (SEQ ID NO. 658) Q ₄ KRPSQRSKYL (SEQ ID NO. 659)	fibrinogen (2) glycogen synthase (site 2) (2) myelin basic protein (2)
Abl Tyrosine Kinase	I/V/L-Y-X-X-P/F ^e		
Epidermal Growth Factor Receptor Kinase (EGF-RK)	E/D-Y-X E/D-Y-I/L/V	R ₁₁₆₈ ENAEYLRVAP (SEQ ID NO. 660) A ₇₆₇ EPDYGALYE (SEQ ID NO. 661)	autophosphorylation (2) phospholipase C-g(2)

Single-letter Amino Acid Code:

A = alanine, C = cysteine, D = aspartic acid, E = glutamic acid, F = phenylalanine, G = glycine, H = histidine, I = isoleucine, K = lysine, L = leucine, M = methionine, N = asparagine, P = proline, Q = glutamine, R = arginine, S = serine, T = threonine, W =

tryptophan, V = valine, Y = tyrosine, X = any amino acid

^a Recognition motifs are taken from Pearson and Kemp (*supra*) except where noted.
Consult Pearson and Kemp for a comprehensive list of phosphorylation site sequences and specificity motifs.

^b Subscripted numbers refer to the position of the first residue within the given polypeptide chain.

^c From (1).

^d From (7).

^e From (8). See refs (8) and (9) for discussion of substrate recognition by Abl.

Please replace the Table appearing on pages 138-154 of the application as filed with the following, amended Table:

Table SARS List of SARS virus-specific PETs

>gi 30795153 gb AAP41045.1 Orf10 [SARS coronavirus Tor2]	ISLCSCIC (SEQ ID NO. 663)
>gi 30795153 gb AAP41045.1 Orf10 [SARS coronavirus Tor2]	SLCSCICT (SEQ ID NO. 664)
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>gi 32187352 gb AAP72981.1 Orf7b [SARS coronavirus HSR 1]	ELTLIDFY (SEQ ID NO. 677)
>gi 32187352 gb AAP72981.1 Orf7b [SARS coronavirus HSR 1]	LTIDFYLC (SEQ ID NO. 678)
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>gi 32187352 gb AAP72981.1 Orf7b [SARS coronavirus HSR 1]	LIDFYLCF (SEQ ID NO. 680)
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>gi|32187352|gb|AAP72981.1| Orf7b [SARS coronavirus HSR 1] LCFLAFL ([SEQ ID NO. 685](#))
>gi|32187352|gb|AAP72981.1| Orf7b [SARS coronavirus HSR 1] CFLAFLLF ([SEQ ID NO. 686](#))
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EPMELDY ([SEQ ID NO. 716](#))
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EPMELDYP ([SEQ ID NO. 717](#))
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KEQHCQKA (SEQ ID NO. 734)

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HCQKASTQ (SEQ ID NO. 737)

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CQKASTQR (SEQ ID NO. 738)

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VKLPSRYC (SEQ ID NO. 786)
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KLPSRYCC (SEQ ID NO. 787)

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VLLFLAFM ([SEQ ID NO. 788](#))

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LLFLAFMV ([SEQ ID NO. 789](#))

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LFLAFMVF ([SEQ ID NO. 790](#))

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FLAFMVFL ([SEQ ID NO. 791](#))

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LAFMVFLL ([SEQ ID NO. 792](#))

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AFMVFLLV ([SEQ ID NO. 793](#))

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FMVFLLV ([SEQ ID NO. 794](#))

>gi|31416298|gb|AAP51230.1| envelope protein E [SARS coronavirus GZ01]
MVFLLVTL ([SEQ ID NO. 795](#))

>gi|29836499|ref|NP_828854.1| small envelope protein; protein sM; protein E [SARS coronavirus]
VLLFLAFV ([SEQ ID NO. 796](#))

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LLFLAFVV ([SEQ ID NO. 797](#))

>gi|29836499|ref|NP_828854.1| small envelope protein; protein sM; protein E [SARS coronavirus]
LFLAFVVF ([SEQ ID NO. 798](#))

>gi|29836499|ref|NP_828854.1| small envelope protein; protein sM; protein E [SARS coronavirus]
FLAFVVFL ([SEQ ID NO. 799](#))

>gi|29836499|ref|NP_828854.1| small envelope protein; protein sM; protein E [SARS coronavirus]
LAFVVFLL ([SEQ ID NO. 800](#))

>gi|29836499|ref|NP_828854.1| small envelope protein; protein sM; protein E [SARS coronavirus]
AFVVFLLV ([SEQ ID NO. 801](#))

>gi|29836499|ref|NP_828854.1| small envelope protein; protein sM; protein E [SARS coronavirus]
FVVFLLV ([SEQ ID NO. 802](#))

>gi|29836499|ref|NP_828854.1| small envelope protein; protein sM; protein E [SARS coronavirus]
VVFLLVTL ([SEQ ID NO. 803](#))

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>gi|32187354|gb|AAP72983.1| Orf8b [SARS coronavirus HSR 1] LKILVRYN ([SEQ ID NO. 806](#))

>gi|32187354|gb|AAP72983.1| Orf8b [SARS coronavirus HSR 1] KILVRYNT ([SEQ ID NO. 807](#))

>gi|32187354|gb|AAP72983.1| Orf8b [SARS coronavirus HSR 1] ILVRYNTR ([SEQ ID NO. 808](#))

>gi|32187354|gb|AAP72983.1| Orf8b [SARS coronavirus HSR 1] LVRYNTRG ([SEQ ID NO. 809](#))

>gi|32187354|gb|AAP72983.1| Orf8b [SARS coronavirus HSR 1] VRYNTRGN ([SEQ ID NO. 810](#))

>gi|32187354|gb|AAP72983.1| Orf8b [SARS coronavirus HSR 1] TAAFRDVL ([SEQ ID NO. 811](#))

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>gi|32187354|gb|AAP72983.1| Orf8b [SARS coronavirus HSR 1] AFRDVLVV ([SEQ ID NO. 813](#))

>gi|32187354|gb|AAP72983.1| Orf8b [SARS coronavirus HSR 1] FRDVLVVL ([SEQ ID NO. 814](#))

>gi|32187354|gb|AAP72983.1| Orf8b [SARS coronavirus HSR 1] RDVLVVLN ([SEQ ID NO. 815](#))

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>gi|32187354|gb|AAP72983.1| Orf8b [SARS coronavirus HSR 1] VLVVLNKR ([SEQ ID NO. 817](#))
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NVVPPALH ([SEQ ID NO. 825](#))
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- >gi|31581511|gb|AAP33703.1| Orf7a [SARS coronavirus Frankfurt 1]

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- >gi|31581511|gb|AAP33703.1| Orf7a [SARS coronavirus Frankfurt 1]
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- >gi|31581511|gb|AAP33703.1| Orf7a [SARS coronavirus Frankfurt 1]
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- >gi|31581511|gb|AAP33703.1| Orf7a [SARS coronavirus Frankfurt 1]
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- >gi|30795146|gb|AAP41038.1| Orf3 [SARS coronavirus Tor2] MRFFTLRS (SEQ ID NO. 1132)
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- >gi|30795146|gb|AAP41038.1| Orf3 [SARS coronavirus Tor2] FFTLSRIT ([SEQ ID NO. 1134](#))
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- >gi|30795146|gb|AAP41038.1| Orf3 [SARS coronavirus Tor2] TLRISITAQ ([SEQ ID NO. 1136](#))
- >gi|30795146|gb|AAP41038.1| Orf3 [SARS coronavirus Tor2] LRSITAQP ([SEQ ID NO. 1137](#))
- >gi|30795146|gb|AAP41038.1| Orf3 [SARS coronavirus Tor2] RSITAQPV ([SEQ ID NO. 1138](#))
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SSRSRCN ([SEQ ID NO. 1140](#))
- >gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]
SSRSRCNS ([SEQ ID NO. 1141](#))
- >gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]
SRSRCNSR ([SEQ ID NO. 1142](#))
- >gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]
RSRCNSRN ([SEQ ID NO. 1143](#))
- >gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]
SRCNSRNS ([SEQ ID NO. 1144](#))
- >gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]
RCNSRNST ([SEQ ID NO. 1145](#))
- >gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]
CNSRNSTP ([SEQ ID NO. 1146](#))
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]
PQGLPNNI ([SEQ ID NO. 1147](#))
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]
QGLPNNIA ([SEQ ID NO. 1148](#))
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]
GLPNNIAS ([SEQ ID NO. 1149](#))
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]
LPNNIASW ([SEQ ID NO. 1150](#))
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]
PNNIASWF ([SEQ ID NO. 1151](#))
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]
NNIASWFT ([SEQ ID NO. 1152](#))
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]
NIASWFTA ([SEQ ID NO. 1153](#))
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]
IASWFTAL ([SEQ ID NO. 1154](#))
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]
HTSPDVDF ([SEQ ID NO. 1155](#))
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]
TSPDVDFG ([SEQ ID NO. 1156](#))
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]
SPDVDFGD ([SEQ ID NO. 1157](#))
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]
PDVDFGDI ([SEQ ID NO. 1158](#))

- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]
DVDFGDIS (SEQ ID NO. 1159)
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]
VDFGDISG (SEQ ID NO. 1160)
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]
DFGDISGI (SEQ ID NO. 1161)
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]
FGDISGIN (SEQ ID NO. 1162)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
RAILTAFL (SEQ ID NO. 1163)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
AILTAFLP (SEQ ID NO. 1164)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
ILTAFLPA (SEQ ID NO. 1165)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
LTAFLPAQ (SEQ ID NO. 1166)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
TAFLPAQD (SEQ ID NO. 1167)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
AFLPAQDT (SEQ ID NO. 1168)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
FLPAQDTW (SEQ ID NO. 1169)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
LPAQDTWG (SEQ ID NO. 1170)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
NFRVVPSR (SEQ ID NO. 1171)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
FRVVPSRD (SEQ ID NO. 1172)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
RVVPSRDV (SEQ ID NO. 1173)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
VVPSRDVV (SEQ ID NO. 1174)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
VPSRDVVR (SEQ ID NO. 1175)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
PSRDVVRF (SEQ ID NO. 1176)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
SRDVVRFP (SEQ ID NO. 1177)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
RDVVRFPN (SEQ ID NO. 1178)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
VYAWERKR (SEQ ID NO. 1179)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
YAWERKRI (SEQ ID NO. 1180)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]

- AWERKRIS (SEQ ID NO. 1181)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
WERKRISN (SEQ ID NO. 1182)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
ERKRISNC (SEQ ID NO. 1183)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
RKRISNCV (SEQ ID NO. 1184)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
KRISNCVA (SEQ ID NO. 1185)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
RISNCVAD (SEQ ID NO. 1186)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
YRVVVLSY (SEQ ID NO. 1187)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
RVVVLSYE (SEQ ID NO. 1188)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
VVVLSYEL (SEQ ID NO. 1189)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
VVLSEYEL (SEQ ID NO. 1190)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
VLSYELLN (SEQ ID NO. 1191)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
LSYELLNA (SEQ ID NO. 1192)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
SYELLNAP (SEQ ID NO. 1193)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
YELLNAPA (SEQ ID NO. 1194)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
YKTPCLKD (SEQ ID NO. 1195)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
KTPCLKDF (SEQ ID NO. 1196)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
TPTCLKDFG (SEQ ID NO. 1197)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
PTCLKDFGG (SEQ ID NO. 1198)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
TLKDFGGF (SEQ ID NO. 1199)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
LKDFGGFN (SEQ ID NO. 1200)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
KDFGGFNF (SEQ ID NO. 1201)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
DFGGFNFS (SEQ ID NO. 1202)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
ILPDPLKS (SEQ ID NO. 1203)

- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
LPDPLKST (SEQ ID NO. 1204)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
PDPLKSTK (SEQ ID NO. 1205)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
DPLKSTKR (SEQ ID NO. 1206)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
PLKSTKRS (SEQ ID NO. 1207)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
LKSTKRSF (SEQ ID NO. 1208)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
KSTKRSFI (SEQ ID NO. 1209)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]
STKRSFIE (SEQ ID NO. 1210)
- >gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]
ILDISPCA (SEQ ID NO. 1211)
- >gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]
LDISPCAF (SEQ ID NO. 1212)
- >gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]
DISPCAFG (SEQ ID NO. 1213)
- >gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]
ISPCAFGG (SEQ ID NO. 1214)
- >gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]
SPCAFGGV (SEQ ID NO. 1215)
- >gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]
PCAFGGVS (SEQ ID NO. 1216)
- >gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]
CAFGGVSV (SEQ ID NO. 1217)
- >gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]
AFGGVSVI (SEQ ID NO. 1218)
- >gi|30023954|gb|AAP13567.1| putative E2 glycoprotein precursor [SARS coronavirus CUHK-W1]
AFSPAQDT (SEQ ID NO. 1219)
- >gi|30023954|gb|AAP13567.1| putative E2 glycoprotein precursor [SARS coronavirus CUHK-W1]
FSPAQDTW (SEQ ID NO. 1220)
- >gi|30023954|gb|AAP13567.1| putative E2 glycoprotein precursor [SARS coronavirus CUHK-W1]
SPAQDTWG (SEQ ID NO. 1221)
- >gi|31416293|gb|AAP51225.1| orflab [SARS coronavirus GZ01]
DALCEKAS (SEQ ID NO. 1222)
- >gi|31416293|gb|AAP51225.1| orflab [SARS coronavirus GZ01]
ALCEKASK (SEQ ID NO. 1223)
- >gi|31416293|gb|AAP51225.1| orflab [SARS coronavirus GZ01]
LCEKASKY (SEQ ID NO. 1224)
- >gi|31416293|gb|AAP51225.1| orflab [SARS coronavirus GZ01]
CEKASKYL (SEQ ID NO. 1225)
- >gi|31416293|gb|AAP51225.1| orflab [SARS coronavirus GZ01]

EKASKYLP (SEQ ID NO. 1226)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] KASKYLPI (SEQ ID NO. 1227)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] ASKYLPID (SEQ ID NO. 1228)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] SKYLPIDK (SEQ ID NO. 1229)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] SVIDLLN (SEQ ID NO. 1230)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] LLLNDFVE (SEQ ID NO. 1231)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] LLNDFVEI (SEQ ID NO. 1232)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] LNDFVEII (SEQ ID NO. 1233)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] NDFVEIIK (SEQ ID NO. 1234)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]
LVDSLNE (SEQ ID NO. 1235)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]
VDSLNEF (SEQ ID NO. 1236)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]
DSLNEFV (SEQ ID NO. 1237)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]
SDLNEFVS (SEQ ID NO. 1238)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]
DLNEFVSD (SEQ ID NO. 1239)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]
LNEFVSDA (SEQ ID NO. 1240)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]
NEFVSDAD (SEQ ID NO. 1241)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] EFVSDADS (SEQ ID NO. 1242)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]
ANYIFWRK (SEQ ID NO. 1243)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]
NYIFWRKT (SEQ ID NO. 1244)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]
YIFWRKTN (SEQ ID NO. 1245)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] IFWRKTNP (SEQ ID NO. 1246)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] FWRKTNP (SEQ ID NO. 1247)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] WRKTNP (SEQ ID NO. 1248)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] RKTNPQL (SEQ ID NO. 1249)
>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] KTNPIQLS (SEQ ID NO. 1250)
>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]
SADASTFF (SEQ ID NO. 1251)
>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]
ADASTFFK (SEQ ID NO. 1252)
>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]
DASTFFKR (SEQ ID NO. 1253)
>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]
ASTFFKRV (SEQ ID NO. 1254)
>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]

STFFKRVC (SEQ ID NO. 1255)
>gi|30795144|gb|AAP41036.1| replicase 1AB [SARS coronavirus Tor2]
TFFKRVCG (SEQ ID NO. 1256)
>gi|30795144|gb|AAP41036.1| replicase 1AB [SARS coronavirus Tor2]
FFKRVC GV (SEQ ID NO. 1257)
>gi|30795144|gb|AAP41036.1| replicase 1AB [SARS coronavirus Tor2]
FKRVCGVS (SEQ ID NO. 1258)
>gi|30795144|gb|AAP41036.1| replicase 1AB [SARS coronavirus Tor2]
KRVCGVSA (SEQ ID NO. 1259)
>gi|31581504|gb|AAP33696.1| polyprotein 1ab [SARS coronavirus Frankfurt 1]
ELFYSAI (SEQ ID NO. 1260)
>gi|31581504|gb|AAP33696.1| polyprotein 1ab [SARS coronavirus Frankfurt 1]
LFYSYAIH (SEQ ID NO. 1261)
>gi|31581504|gb|AAP33696.1| polyprotein 1ab [SARS coronavirus Frankfurt 1]
FYSAIHH (SEQ ID NO. 1262)
>gi|31581504|gb|AAP33696.1| polyprotein 1ab [SARS coronavirus Frankfurt 1]
YSYAIHHD (SEQ ID NO. 1263)
>gi|31581504|gb|AAP33696.1| polyprotein 1ab [SARS coronavirus Frankfurt 1]
SYAIHHDK (SEQ ID NO. 1264)
>gi|31581504|gb|AAP33696.1| polyprotein 1ab [SARS coronavirus Frankfurt 1]
YAIHHDKF (SEQ ID NO. 1265)
>gi|31581504|gb|AAP33696.1| polyprotein 1ab [SARS coronavirus Frankfurt 1]
AIHHDKFT (SEQ ID NO. 1266)
>gi|31581504|gb|AAP33696.1| polyprotein 1ab [SARS coronavirus Frankfurt 1]
IHHDKFTD (SEQ ID NO. 1267)

Please replace the first Table on page 155 of the application as filed with the following, amended Table:

Peptide Sequence	Length (aa)	Affinity (K _D in nM)	Reference
GATPEDLNQKLAGN (SEQ ID NO.: 1268)	14	1.4	Cell 91:799,1997
CRGTGSYNRSSFESSG (SEQ ID NO.: 1269)	17	2.8	JIM 249:253, 2001
NYRAYATEPHAKKKS (SEQ ID NO.: 1270)	15	0.5	EJB 267: 1819,2000
RYDIEAKVTK (SEQ ID NO.: 1271)	10	3.5	Jl 169: 6992,2002

DRVYIHPF (SEQ ID NO:: 1272)	8	0.5	JIM 254: 147,2001
PQSDPSVEPPLS (SEQ ID NO:: 1273)	12	16 (a scFv)	NG21: 163,2003
YDVDPDYAS (HA tag) (SEQ ID NO:: 1274)	8	2	engeneOS
MDYKAFDN (FLAG tag) (SEQ ID NO:: 1275)	8	2.3	engeneOS
HHHHH (HIS tag) (SEQ ID NO:: 1276)	5	25	Novagen

Please replace the second Table on page 155 of the application as filed with the following, amended Table:

PET Sequence	Ab name	Affinity (K _D in nM)	Parental Protein
EPAELTDA (SEQ ID NO:: 1277)	P1	5	PSA
YEVQGEVF (SEQ ID NO:: 1278)	C1	31	CRP
GYSIFSYA (SEQ ID NO:: 1279)	C2	200	CRP

Please replace the Table on page 156 of the application as filed with the following, amended Table. Please note that only the SEQ ID NOs have been added to this Table. The underlined portions of the sequences in this Table appear underlined in the application as filed.

PET	LSEPAELTDAVK (SEQ ID NO. 1280)	AA Differences
- NNP1	<u>DEPVELTS</u> <u>S</u> APTGHFTS (SEQ ID NO. 1281)	2

-	NNP2	AGE <u>AAELQ</u> DAEVSSAK (SEQ ID NO. 1282)	2
-	NNP3	LQEP <u>AE</u> LVESDGVPK (SEQ ID NO. 1283)	3
-	NNP4	AQ <u>PAELVD</u> SSGW (SEQ ID NO. 1284)	3
-	NNP5	GL <u>DPTQLT</u> DALTQR (SEQ ID NO. 1285)	3
PET		YEVQGEVFTK (SEQ ID NO. 1286)	AA Differences
-	NNP1	H <u>VEVN</u> GEVFQK (SEQ ID NO. 1287)	2
-	NNP2	S <u>YEV</u> L <u>GEE</u> FDR (SEQ ID NO. 1288)	2
-	NNP3	QY <u>AVS</u> GE <u>IF</u> VVDR (SEQ ID NO. 1289)	3
-	NNP4	VY <u>EEQ</u> GE <u>II</u> LK (SEQ ID NO. 1290)	3
-	NNP5	LY <u>EV</u> R <u>GETY</u> LK (SEQ ID NO. 1291)	3

Please replace the last full paragraph on page 156 of the application as filed with the following, amended paragraph. Please note that only the SEQ ID NOs have been added to this paragraph. The underlined portions of the sequences in this paragraph appear underlined in the application as filed.

For example, Figure 24 shows peptide competition results using the peptide competition assay described in Example 5. The left panel shows that antibody P1, which is specific for the PSA-derived 8-mer PET sequence EPAELTDA (SEQ ID NO: 1277), can be effectively competed away by the antigen PET (EPAELTDA) (SEQ ID NO: 1277), with a half-maximum effective peptide concentration of around 40 nM. However, two of its nearest-neighbor 8-mer PETs found in the human proteome with only two- or three-amino-acid differences, EPVELTSA (SEQ ID NO: 1292) and DPTQLTDA (SEQ ID NO: 1293), are completely ineffective even at 1000 μ M (25,000-fold higher concentration). Similarly, the right panel shows that antibody C1, which is specific for

the CRP-derived 8-mer PET sequence YEVQGEVF (SEQ ID NO: 1278), can be effectively competed away by the antigen PET sequence YEVQGEVF (SEQ ID NO: 1278), with a half-maximum effective peptide concentration of around 1 μ M. However, two of its nearest-neighbor 8-mer PETs found in the human proteome with only two-amino-acid differences, VEVNGEVF (SEQ ID NO: 1294) and YEVLGEEF (SEQ ID NO: 1295), are completely ineffective even at 1000 μ M (at least 1,000-fold higher concentration).

Please replace the Table bridging pages 158-159 of the application as filed with the following, amended Table. Please note that only the SEQ ID NOs have been added to this Table. The underlined portions of the sequences in this Table appear underlined in the application as filed.

hK1	HS <u>Q</u> PWQVAVYSHGWAHCGGVLVHR (SEQ ID NO. 1296)
hK2	IVGGWECEQH <u>SQ</u> PWQAALYHFSTFQCGGILVHK (SEQ ID NO. 1297)
hK3	GS <u>Q</u> PWQVSLFNGLSFHCAGVLVDR (SEQ ID NO. 1298)
hK4	NS <u>Q</u> PWQVGLFEGTSLR (SEQ ID NO. 1299)
hK5	HECQPH <u>SQ</u> PWQAALFQGQQLLCGGVLVGR (SEQ ID NO. 1300)
hK8	EDCSPH <u>SQ</u> PWQAALVMENELFCGGVLVHR (SEQ ID NO. 1301)
hK9	VL <u>NTNGTSG</u> FLPGGYTCFPH <u>SQ</u> PWQAALLVQGR (SEQ ID NO. 1302)
hK10	LLE <u>GDECA</u> PH <u>SQ</u> PWQVALYER (SEQ ID NO. 1303)
hK11	PNS <u>Q</u> PWQAGLFHLTR (SEQ ID NO. 1304)
hK6	CVTAGTSCLI <u>SGWG</u> STSSPQLR (SEQ ID NO. 1305)

Hk7 VMDLPTQEPALGTTCYASSGWGSIEPEEFLTPK (SEQ ID NO. 1306)

Please replace the second and third full paragraphs on page 159 of the application as filed with the following, amended paragraphs. Please note that only the SEQ ID NOs have been added to this paragraph. The underlined portions of the sequences in this paragraph appear underlined in the application as filed.

In addition, the same approach may be used to detect the presence of alternative splicing isoforms of any protein. For example, there are three alternative splicing forms of hK15 (* represents trypsin digestion sites):

hK15-V1 R*LNPQVR*PAVLPTR*CPHPGEACVVSGWGLVSHEPGTAGSPR*SQG
(SEQ ID NO. 1307)

hK15-V2 R*LNPQ (SEQ ID NO. 1308)-----

hK15-V3 R*LNPQGDSGGPLVCGGILQGIVSWGDVPCDNTTK*PGVYTK (SEQ ID NO. 1309)

Thus, SGWGLVSH (SEQ ID NO: 1310) is a PET for detecting V1, with the three nearest neighbor peptides being AGWGIVNH (SEQ ID NO: 1311), SGWGITNH (SEQ ID NO: 1312), and SGWGMVTE (SEQ ID NO: 1313). Similarly, WGDVPCDN (SEQ ID NO: 1314) is a PET for detecting V1, with the three nearest neighbor peptides being WKDVPCED (SEQ ID NO: 1315), WNDAPCDS (SEQ ID NO: 1316), and WNDAPCDK (SEQ ID NO: 1317).